EXECUTIVE SUMMARY

INTRODUCTION

This Draft Environmental Impact Statement (DEIS) analyzes the impacts of drilling and production operations in the Cave Gulch-Bullfrog-Waltman natural gas development area of central Wyoming. This DEIS has been prepared pursuant to the National Environmental Policy Act (NEPA) and addresses three field development scenarios (Proposed Action, Alternative A, and Alternative B), and a "No Action" alternative, Alternative C. This DEIS is not a decision document. The decision regarding the project will be documented in a Record of Decision (ROD) signed by the Bureau of Land Management (BLM) State Director, Cheyenne, Wyoming. The BLM's decision will relate primarily to public lands administered by the BLM. "Public lands" means any lands or interests in lands owned by the United States and administered by the Secretary of Interior through the BLM, without regard to how the United States acquired ownership.

The Cave Gulch-Bullfrog-Waltman project area is located in Natrona County, Wyoming within Townships 36 and 37 North (T36-37N), Ranges 86 and 87 West (R86-87W), Sixth Principal Meridian. The project area encompasses approximately 25,093 acres of mixed federal, State, and private lands. Of this total, approximately 7,391 acres are public lands administered by the U.S. Department of the Interior (USDI) Bureau of Land Management (BLM), 1,235 acres are managed by the State of Wyoming, and 16,467 acres are private lands. In the project area, 77 percent of the mineral estate is federal (19,327 acres), 3.1 percent is State (786 acres), and 19.9 percent is private (4,980 acres).

The Cave Gulch-Bullfrog-Waltman Natural Gas Development Project DEIS was prepared by the Bureau of Land Management (BLM), Casper District, Platte River Resource Area, Casper, Wyoming, the lead agency for the project, with assistance from a third party contractor. Details on the Proposed Action and alternatives are described in the DEIS according to the following chapters. **Chapter 1** defines the Purpose and Need for the proposed project. **Chapter 2** details the parameters of the Proposed Action and other alternatives, and provides a summary of mitigation and monitoring measures proposed by the project operators to avoid or reduce impacts. **Chapter 3** of the DEIS discusses the areas and resources that would be affected under each alternative. **Chapter 4** examines the environmental consequences to each resource under each alternative and also provides a summary of mitigation measures by resource discipline which were identified during the analysis process. The measures and requirements in the DEIS describe how implementation of the Proposed Action or alternatives should be managed to achieve minimal impacts in the Cave Gulch-Bullfrog-Waltman project area and adjacent lands. **Chapter 5** examines the cumulative effects of implementing the Proposed Action and alternatives. **Chapter 6** of the DEIS summarizes the consultation and coordination accomplished with various federal, State, county, and local agencies, elected representatives, environmental and citizen groups, industries, and individuals potentially concerned with issues regarding the proposed drilling action.

Technology, operator cooperation, and public coordination contributed to the BLM's ability to develop and analyze a more site specific proposed action and alternatives, rather than taking a general, conceptual approach to the EIS. The BLM identified probable well pad locations under the Proposed Action and alternatives based on reasonable geologic and reservoir assumptions, and as a result, was able to identify and disclose the environmental impacts and develop comprehensive mitigation measures. The more site specific description of the proposal and alternatives also made it possible to perform a comprehensive economic analysis.

The BLM's Wyoming Reservoir Management Group's (WRMG) February 1996 *Cave Gulch-Bullfrog-Waltman Area Preliminary Reservoir Analysis* disclosed the potential significance of the gas reserves in the project area, and confirmed that analysis of development through the EIS process was appropriate. Barrett Resources Corporation (Barrett) and Chevron U.S.A. Production Company (Chevron), two of the seven operators within the Cave Gulch-Bullfrog-Waltman project area, provided the WRMG with geologic and engineering information needed to more fully evaluate the geology and mineral reserves in the project area. The WRMG's preliminary report, and their June 1996 *Final Geological, Well Spacing and Reserve Evaluation Report*, were relied upon by the operators and the BLM to estimate the levels of development that could occur under the Proposed Action and alternatives in efforts to recover the oil and gas reserves. The WRMG's final report estimates that the original gas in place is 1,556.8 billion cubic feet (bcf), and that within the defined natural gas reservoir limits 200 wells could potentially be completed for production.

The BLM collaborated with other parties on interim development and the air quality analysis, and encouraged extensive public participation in an effort to provide interested and affected parties a better understanding of the NEPA process and the analysis conducted. The major issues identified as a result of public participation were effects on raptor nesting habitat and populations, sensitive soils, and socioeconomic conditions.

BLM was able to better describe and illustrate the Proposed Action, the alternatives, and the existing environment through use of the Global Positioning System to identify ground locations of nests and other features; and, by the application of Geographic Information System (GIS) technologies. Many of the figures in this DEIS were possible because the WRMG and the EIS contractor shared GIS data, and exchanged information electronically. As a result, the public should be able to more clearly understand the proposal, alternatives, and analysis, and the BLM will be able to more efficiently process development applications when the DEIS is finalized and the ROD is signed. The level of detailed analysis in this DEIS is reflective of the scale of development, but does not constitute a commitment for specific drilling or development proposals.

The DEIS addresses a Proposed Action and three alternatives as described in greater detail in following sections and briefly summarized here. Under the Proposed Action, 107 new well pads and enlargement of 24 existing well pads would provide for development of approximately 160 natural gas wells, subject to occupancy restrictions in raptor nest buffer zones of 1/4- to 1/2 mile during raptor nesting periods. The other three alternatives analyzed in the DEIS are: (1) Alternative A which would provide for fewer surface well pads and production facilities, year-round buffers around selected raptor nests, and management of casual use and unusual maintenance activities during raptor nesting periods; (2) Alternative B which provides for designation of an area adjacent to the project area as a Key Raptor Area; and, (3) Alternative C, No Action, which would deny the proposal as submitted, but would allow consideration of individual development proposals on a case by case basis through individual project and site-specific environmental analysis.

The DEIS analysis revealed that significant impacts to the physical aspects of the human environment could occur to visual and recreation quality. Long-term significant impacts to raptors are predicted under the Proposed Action and Alternatives B and C unless mitigation measures are successfully implemented. Development of well pads and associated facilities would not result in significant impacts to visual quality, but the natural gas liquids recovery plant included under the Proposed Action and Alternatives A and B would produce significant impacts. The Proposed Action and alternatives would have significant short- and long-term adverse impacts on the recreational

resources of the project area, and the project would detract from the experience of those traveling the Backcountry Byway and the few that may continue to recreate in the project area.

The DEIS analysis has predicted that mitigation, primarily in the form of Artifical Nest Structures (ANSs), would alleviate most of the displacement of up to seven raptor pairs from the project area that would occur under the Proposed Action and Alternative B. Given the effective placement of ANSs throughout the Greater Raptor Analysis Area (GRAA), nesting opportunities for pairs of raptors displaced by activity in the project area would be provided, and it is likely that no significant long-term impacts to raptor population production on the GRAA would result from implementation of the Proposed Action or Alternative B.

Effective mitigation through use of ANSs relies on details being addressed regarding ANS locations, long-term maintenance, restrictions on activities to ensure the security of the ANS sites for long-term raptor nesting, and monitoring to measure the effectiveness of the ANSs. These aspects of using ANSs as mitigation would have to be specified and implemented to assure that the ANSs and other mitigation under the Proposed Action and Alternative B would result in no significant losses to any of the populations of raptor species. Impacts to all other resources analyzed would be minimal if the mitigation measures identified are successfully implemented.

The following sections describe the Proposed Action and alternatives in more detail. The Agency-Preferred Alternative section explains the BLM's reasons for selecting Alternative B as the Preferred Alternative. The Background section describes actions that led to the need and reason for conducting analysis through the EIS process.

PROPOSED ACTION AND ALTERNATIVES

Proposed Action

Under the Proposed Action the seven Cave Gulch-Bullfrog-Waltman operators would drill and develop approximately 160 natural gas wells on 107 new well pads and 24 enlarged well pads in addition to the existing drilling and production operations. Development activities would be subject to occupancy restrictions of 1/4- to 1/2 mile around all raptor nest buffer zones during raptor nesting periods. The Proposed Action was determined by summarizing drilling plans projected by the Cave Gulch-Bullfrog-Waltman Operators for the next ten-year planning period. Total life expectancy of the Cave Gulch-Bullfrog-Waltman Natural Gas Development Area is estimated by the Operators to be 30 to 40 years. Drilling estimations were based on reasonably foreseeable spacing and drilling projections in areas within the project area where the planned production and development activities would occur. The areas needed for well pads and production facilities were based on typical well pad layout diagrams common to those facilities. For related roads and pipelines, estimations of lengths and widths needed for development of those linear facilities were used.

The Proposed Action was divided into four planning areas as shown on Figure 2-1 and discussed in Section 2.1.1 (Proposed Action). The four planning areas were used by the Operators to better define drilling densities that would be necessary for maximum recovery of the natural gas resource. The precise number of new wells, locations of the wells, and timing of drilling would be directed by the success of development drilling and production technology, and economic considerations such as the cost of development of leases having marginal profitability. This proposed development level would also provide consideration of topographic and environmental limitations within the project area.

Construction of the Proposed Action would involve 313.45 acres of well pad disturbance, 256.02 acres of new road disturbance, 183.92 acres of pipeline disturbance, and 35 acres of ancillary facility disturbance, for a total of approximately 788.39 acres. Approximately 50 percent of this area would be reclaimed. Disturbances associated with well pads would be reduced by reclaiming cut, fill, and soil stockpiling areas. This would represent an approximate reduction of 82.45 acres for all new well pads, and 128.01 acres for outside road ditches. All cross-country pipelines would be reclaimed representing an approximate reduction of 183.92 acres of disturbed area, thus reducing the total disturbance by 394.38 acres to 394.01 acres.

Alternative A

Under Alternative A the operators would drill and develop natural gas wells from 97 new well pads and 2 enlarged well pads. This alternative provides for fewer individual well pad production facilities because those facilities would be consolidated (i.e., centralized). The well pad and linear facilities assumptions used for the Proposed Action also apply to Alternative A. Development under this alternative would be subject to a year-round restriction on specific buffer zones around eleven selected raptor nests, and would be subject to restrictions within one-mile around the ferruginous hawk nests during raptor nesting periods. Under Alternative A, casual use and unusual maintenance activities would be managed during key raptor nesting periods.

The technical requirements for Alternative A, including the project-wide mitigation measures, are the same as described for the Proposed Action. The construction of this alternative would involve 268.35 acres of well pad disturbance, 223.88 acres of new road disturbance, 142.78 acres of pipeline disturbance, and 35 acres of ancillary facility disturbance, for a total of approximately 670.01 acres. A large portion of this area would be reclaimed as described under the Proposed Action, thus reducing the total disturbance by 362.97 acres to 307.04 acres.

Alternative B

Under Alternative B, the operators would drill and develop natural gas wells from 114 new well pads. The well pad and linear facilities assumptions used for the Proposed Action also apply to Alternative B. Development in the project area would be subject to occupancy restrictions of 1/4- to 1/2 mile buffer zones around all raptor nests during raptor nesting periods, and casual use and unusual maintenance activities would be managed during key raptor nesting periods. An area adjacent to the project area would be designated as a Key Raptor Area. In the Key Raptor Area, oil and gas development would be subject to the 1/4- to 1/2-mile seasonal raptor restriction unless or until field development is proposed. At that time, a year-round raptor stipulation and increased distance of the seasonal raptor stipulation for ferruginous hawk nests would be evaluated.

The technical requirements for Alternative B, including the project-wide mitigation measures, are the same as described for the Proposed Action. The construction of this alternative would involve 313.50 acres of well pad disturbance, 256.86 acres of new road disturbance, 163.35 acres of pipeline disturbance, and 35 acres of ancillary facility disturbance, for a total of approximately 768.71 acres. A large portion of this area would be reclaimed as described under the Proposed Action, thus reducing the total disturbance by 420.28 acres to 348.43 acres.

Alternative C - No Action

Alternative C, the No Action Alternative, would deny the Proposed Action and Alternatives A and B, but would allow consideration of individual development proposals on a case by case basis through individual project and site-specific environmental analysis. Additional gas development could occur on State and private minerals within the project area under authorizations granted by the Wyoming Oil and Gas Conservation Commission (WOGCC).

AGENCY-PREFERRED ALTERNATIVE

Based on the analyses presented in the DEIS the BLM has selected Alternative B as the preferred alternative for the Cave Gulch-Bullfrog-Waltman project area. The BLM believes that Alternative B allows a balance between short- and long-term mitigation of impacts to habitat and individuals of wildlife species in the region, while affording reasonable opportunities for maximum recovery of the oil and gas reserves in the project area. Maximum recovery of the oil and gas reserves will also provide for realization of the federal, state, and local revenues associated with the development. Impacts to sensitive soils which could result under Alternative B can be avoided, or would be mitigated through implementation of reclamation measures identified through the DEIS analysis.

Under Alternative B, the Key Raptor Area provides for secure long-term raptor nesting habitat adjacent to the project area and would serve as a core or refuge area where long-term reproduction opportunity for raptors of multiple species would be insured. The Key Raptor Area would also serve as a dissemination area from which to populate or repopulate other areas in the GRRA where future disturbances may cause temporary depletions in raptor populations. The effective placement of ANSs throughout the GRRA would provide nesting opportunities for pairs of raptors displaced by activity in the project area. Given the combined benefits of the Key Raptor Area and the ANSs, Alternative B provides for immediate and future preservation of raptor nesting habitat and opportunity to the extent that the reproductive success of the population of all raptor species in the GRAA should not decrease, or be threatened or damaged, and no long-term significant impacts are expected..

The impact of the displacement of up to seven raptor pairs from the project area caused by implementation of the Proposed Action or Alternative C can be mitigated through the effective placement and management of ANSs, as it could under Alternative B. However, the benefits provided by the Key Raptor Area for secure nesting habitat and opportunities, and for the long-term replenishment and maintenance of GRAA raptor populations are lacking under the Proposed Action and Alternative C.

Under Alternative B the socioeconomic impacts are relatively low. Federal oil and gas lease bids and rentals that would not be realized on federal minerals in the Key Raptor Area could total $43,580 over the next ten years (see Chapter 4, Socioeconomics). However, the Key Raptor Area has low oil and gas development potential. Under Alternative B, facilities could be developed on locations within the project area that avoid sensitive soils and steep slopes, and where those sensitive soil features cannot be avoided special construction techniques and reclamation measures would ensure that disturbed areas are effectively reclaimed and revegetated.

Although Alternative A provides a greater opportunity for directly reducing the number of raptor pairs likely to be displaced from the project area (it is predicted that no raptor pairs would be displaced), portions of the oil and gas reserves would not be recovered. Approximately 54.9 bcf of gas would

be left in place, resulting in $68,624,500 less gross revenue over the life of the project (including $8.6 million less federal royalty revenue, $4.3 million less royalties returned to the State, and $4.3 million less Ad Valorem revenue to Natrona County). Thus, the socioeconomic impacts of lost revenues and unrecoverable reserves are considered too high when there are mitigation measures available which would alleviate most of the impacts to raptors, and provide for immediate and future preservation of raptor nesting habitat.

The selection of Alternative B incorporates compliance with the Platte River Resource Area Resource Management Plan (RMP) and implementation of various mitigation measures. Such measures include the following: (1) proponent-committed project-wide measures for preconstruction planning and design and specific resources, Reclamation Guidelines (Appendix B), Master Surface Use Plan and Natural Gas Pipeline Construction Master Plan (Appendix A) and a Hazardous Substances Management Plan (Appendix D), and additional mitigation measures recommended in Chapter 4 (Mitigation Summary of each resource element). The BLM has concluded that these detail a complete listing of practicable measures to reduce environmental harm resulting from the development and management in the Cave Gulch-Bullfrog-Waltman project area under Proposed Action and alternatives.

Background

Management of federal lands within the Cave Gulch-Bullfrog-Waltman project area, including natural gas drilling and development activities, is provided by the Platte River Resource Area Resource Management Plan (RMP) (USDI-BLM 1985). The proposed natural gas development project and alternatives are in conformance with management objectives provided in the RMP, subject to implementation of prescribed mitigation measures.

Following discovery of natural gas in the Cave Gulch Unit in 1994 by Barrett, an environmental assessment (EA) was prepared by the BLM (Barrett Resources Corporation Cave Gulch Area Natural Gas Development Environmental Assessment and FONSI/Decision Record, May 1995). Based on analysis contained in the EA, the BLM determined that impacts were not expected to be significant and an EIS would not be required.

After the initial discovery of natural gas reserves in the Cave Gulch area, Barrett and Chevron received approval to drill additional wells and construct facilities within the project area under provisions provided in the Barrett Resources Corporation Cave Gulch Area Natural Gas Development Project EA (May 1995).

The BLM issued a decision to vacate the Barrett Cave Gulch decision record in January, 1996 after BLM determined that the mitigation measures upon which the Barrett EA and FONSI were based could not be executed and/or were not sufficient to prevent potential significant impacts from development in the analysis area. Preparation of a Chevron EA for the Bullfrog Unit adjacent to Cave Gulch was suspended when BLM determined that an EIS was required to assess the direct and cumulative impacts from exploration, development, production, and transportation of the natural gas and associated liquid petroleum products in the Cave Gulch-Bullfrog-Waltman project area.

Drilling attempts within the project area have been successful. As of February 1, 1997, 42 natural gas wells have been drilled in the project area.